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## Claims

1. A strontium silicate-based phosphor expressed by the following chemical formula 1:

5  $Sr_{3-x}SiO_5:Eu^{2+}_x$  ---Chemical formula 1  
where  $x$  is  $0.001 < x \leq 1$ .

2. A method of fabricating a strontium silicate-based phosphor, the method comprising the steps of:

10 forming a mixture where strontium carbonate ( $SrCO_3$ ), silica ( $SiO_2$ ), and europium oxide ( $Eu_2O_3$ ) are mixed; drying the mixture; and

15 performing a heat treatment of the dried mixture in a reducing atmosphere to form  $Sr_{3-x}SiO_5:Eu^{2+}_x$   
where  $x$  is  $0 < x \leq 1$ .

3. The method of claim 2, wherein the step of forming the mixture comprising the steps of:

20 weighing the respective components of the mixture; and  
mixing the respective components with a solvent to form the mixture.

4. The method of claim 2, wherein the drying step is performed at a temperature range of  $100 - 150$  °C.

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5. The method of claim 2, wherein the drying step is performed for a time range of 1 - 24 hours.

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6. The method of claim 2, wherein the drying step is performed at a temperature range of  $100 - 150$  °C for a time range of 1 - 24 hours.

7. The method of claim 2, wherein the drying step is performed using an oven.

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8. The method of claim 2, wherein the heat treatment

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is performed at a temperature range of 800 - 1500 °C.

9. The method of claim 2, wherein the heat treatment is performed for a time range of 1 - 48 hours.

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10. The method of claim 2, wherein the heat treatment is performed at a temperature range of 800 - 1500 °C for a time range of 1 - 48 hours.

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11. The method of claim 2, wherein the drying step is performed at a temperature range of 110 - 130 °C for a time range of 8 - 12 hours, and the heat treatment is performed at a temperature range of 1200 - 1400 °C for a time range of 2 - 5 hours.

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12. The method of claim 2, wherein the reducing atmosphere of the heat treatment is made by a hydrogen-mixed gas.

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13. The method of claim 2, wherein the heat treatment uses a nitrogen gas containing 2 - 25% by weight of hydrogen gas so as to make the reducing atmosphere.

14. An LED comprising:

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an LED chip; and

a strontium silicate-based phosphor, which is excited by a light emitted from the LED chip and expressed by the following chemical formula 1:

$Sr_{3-x}SiO_5:Eu^{2+}_x$  ---Chemical formula 1

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where  $x$  is  $0 < x \leq 1$ .

15. The LED of claim 14, wherein the light excited by the phosphor has a wavelength band of 500 - 700 nm.

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16. The LED of claim 14, wherein the LED chip is placed on a reflection cup by which the emitted light is

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reflected.

17. The LED of claim 14, wherein the LED chip for exciting the phosphor is a blue LED chip.

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18. The LED of claim 14, wherein the LED chip and the phosphor are molded by a transparent resin.

19. The LED of claim 14, wherein the phosphor is excited by the LED chip and emits a yellow light.

10 20. The LED of claim 14, emitting a white light.